AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1.   (original): A method of shaping quantization noise, comprising:

receiving a predetermined quantization noise threshold allowed during quantization of sampled audio data and quantization noise energy information of quantized MDCT coefficients of a plurality of frequency bands of an audio frequency range; and

attenuating quantization noise energy of quantized MDCT coefficients of a predetermined number of the plurality of frequency bands, wherein differences between the predetermined quantization noise threshold and the quantization noise energy of the quantized MDCT coefficients are relatively large.

2.   (original): The method of claim 1, wherein the predetermined quantization noise threshold is calculated in a psychoacoustic model.

3.   (original):   The method of claim 1, wherein the quantization noise energy is attenuated by increasing a scale factor band gain.

4.   (canceled).

5.   (canceled).

6.   (canceled).

7.   (canceled).

8.   (currently amended): ~~The method of claim 6,~~ A method of shaping quantization noise, comprising:

calculating a total quantization noise of quantized MDCT coefficients and a sum of quantization noise thresholds calculated in a psychoacoustic model;

comparing the total quantization noise of the quantized MDCT coefficients with the sum of the quantization noise thresholds; and

if the total quantization noise of the quantized MDCT coefficients is less than the sum of the quantization noise thresholds, attenuating quantization noise of a plurality of frequency bands, while if the total quantization noise of the quantized MDCT coefficients is greater than the sum of the quantization noise thresholds, attenuating the quantization noise in selected frequency bands of the plurality of frequency bands.

wherein the attenuation of the quantization noise in the selected frequency bands comprises:

receiving an audio frame, quantizing MDCT coefficients to produce a quantization result, Huffman-coding the quantization result, calculating a number of bits used for the Huffman-coding, and setting the number of bits to use a number of bits smaller than the calculated number of bits in order to control a bit rate;

calculating quantization noise energy of the plurality of frequency bands of an audio frequency range to output calculated quantization noise energy;

storing scale factors used in the quantizing MDCT coefficients;

determining whether the calculated quantization energy is above a quantization noise threshold calculated in the psychoacoustic model, and if the calculated quantization energy is above the quantization noise threshold, shaping the quantized noise energy of the quantized MDCT coefficients to be reduced;

determining whether a scale factor band gain has increased in the plurality of frequency bands, and if the scale factor band gain has increased in the plurality of frequency bands, ending the shaping quantization noise energy using the stored scale factor;

if the scale factor band gain has increased in less than the plurality of the frequency bands, then if the quantization noise energy is shaped to fall within the quantization noise threshold in the psychoacoustic model only when the scale factor band gain increases to be above a predetermined quantization noise threshold, ending the shaping of the quantization noise using the stored scale factor, and if the scale factor band gain does not increase to be above a the predetermined quantization noise threshold, then readjusting the bit rate.

9.   (original): The method of claim 8, wherein bit rate is controlled by adjusting a common gain.

10.   (original):   The method of claim 8, wherein the quantization energy of the quantized MDCT coefficient is controlled by adjusting the scale factor band gain.

11.   (canceled).

12.   (canceled).

13.   (canceled).

14.   (canceled).

15.   (original): A computer-readable recording medium for recording a computer program code for enabling a computer to provide a service of executing a quantization noise distribution adjustment method, the service comprising the steps of receiving a predetermined quantization noise threshold allowed during a quantization of sampled audio data and quantization noise energy information of quantized MDCT coefficients of a plurality of frequency bands of an audio frequency range and attenuating quantization noise energy of quantized MDCT coefficients of a predetermined number of the plurality of frequency bands, wherein differences between the predetermined quantization noise threshold and the quantization noise energy of the quantized MDCT coefficients are relatively large.

16.   (original): The method of claim 1, wherein the differences are first differences which are relatively larger than second differences between the predetermined quantization noise threshold and the quantization noise energies of the quantized MDCT coefficients not in the predetermined number of frequency bands.

17.   (original): The computer-readable recording medium of claim 15, wherein the differences are first differences which are relatively larger than second differences between the predetermined quantization noise threshold and the quantization noise energies of the quantized MDCT coefficients not in the predetermined number of frequency bands